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<input type="checkbox"/>	L3	(peptide bond formation or peptide synthesis or peptide synthase or peptide synthetase) and thermostable same(protease or proteinase)	36
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☐ 1. Document ID: US 7033781 B1

L2: Entry 1 of 35

File: USPT

Apr 25, 2006

US-PAT-NO: 7033781

DOCUMENT-IDENTIFIER: US 7033781 B1

TITLE: Whole cell engineering by mutagenizing a substantial portion of a starting genome, combining mutations, and optionally repeating

DATE-ISSUED: April 25, 2006

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Short; Jay M.	Rancho Santa Fe	CA		US

US-CL-CURRENT: 435/69.1; 435/6

ABSTRACT:

An invention comprising cellular transformation, directed evolution, and screening methods for creating novel transgenic organisms having desirable properties. Thus in one aspect, this invention relates to a method of generating a transgenic organism, such as a microbe or a plant, having a plurality of traits that are differentially activatable. Also, a method of retooling genes and gene pathways by the introduction of regulatory sequences, such as promoters, that are operable in an intended host, thus conferring operability to a novel gene pathway when it is introduced into an intended host. For example a novel man-made gene pathway, generated based on microbially-derived progenitor templates, that is operable in a plant cell. Furthermore, a method of generating novel host organisms having increased expression of desirable traits, recombinant genes, and gene products.

24 Claims, 30 Drawing figures

Exemplary Claim Number: 1

Number of Drawing Sheets: 28

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments	Claims	KMC	Draw D
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☐ 2. Document ID: US 7001884 B2

L2: Entry 2 of 35

File: USPT

Feb 21, 2006

US-PAT-NO: 7001884

DOCUMENT-IDENTIFIER: US 7001884 B2

TITLE: Eglin c based drugs for treatment of disease

DATE-ISSUED: February 21, 2006

PRIOR-PUBLICATION:

DOC-ID

DATE

US 20050203007 A1

September 15, 2005

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Komiyama; Tomoko	Ann Arbor	MI		US
Fuller; Robert S.	Ann Arbor	MI		US

US-CL-CURRENT: 514/12

ABSTRACT:

The present invention relates to eglin c variants which inhibit proteases, and in particular to eglin c mutants at adventitious contact sites. The present invention also relates to eglin c variants which comprise mutations in both adventitious contact sites and at reactive loop sites. The present invention further relates to methods of preparing the eglin c variants, and methods of using the eglin c variants for treatment of diseases including acute bacterial, viral, and fungal infections.

10 Claims, 9 Drawing figures

Exemplary Claim Number: 1

Number of Drawing Sheets: 10

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments	Claims	KMIC	Draw D
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☐ 3. Document ID: US 6967096 B2

L2: Entry 3 of 35

File: USPT

Nov 22, 2005

US-PAT-NO: 6967096

DOCUMENT-IDENTIFIER: US 6967096 B2

TITLE: Thermostable peptidase

DATE-ISSUED: November 22, 2005

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Cheng; Timothy C.	Pasadena	CA		
Ramakrishnan; Vij	Pasadena	CA		
Chan; Sunney I.	Pasadena	CA		

US-CL-CURRENT: 435/212; 530/350

ABSTRACT:

Thermostable peptidase enzyme derived from archaeon from the genus *Pyrococcus* is disclosed. The enzyme is produced from native or recombinant host cells and can be utilized in the biotechnology industry as a useful enzyme in sequencing reactions.

8 Claims, 18 Drawing figures

Exemplary Claim Number: 1

Number of Drawing Sheets: 12

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments	Claims	KWIC	Draw D
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☐ 4. Document ID: US 6950754 B2

L2: Entry 4 of 35

File: USPT

Sep 27, 2005

US-PAT-NO: 6950754

DOCUMENT-IDENTIFIER: US 6950754 B2

TITLE: Apparatus and method for automated protein design

DATE-ISSUED: September 27, 2005

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Mayo; Stephen L.	Pasadena	CA		
Dahiyat; Bassil I.	Los Angeles	CA		
Gordon; D. Benjamin	Pasadena	CA		
Street; Arthur	Los Angeles	CA		
Su; Yaoying	Newport Beach	CA		

US-CL-CURRENT: 702/19; 702/27

ABSTRACT:

The present invention relates to apparatus and methods for quantitative protein design and optimization.

36 Claims, 35 Drawing figures

Exemplary Claim Number: 1

Number of Drawing Sheets: 14

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments	Claims	KWIC	Draw D
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☐ 5. Document ID: US 6902922 B2

L2: Entry 5 of 35

File: USPT

Jun 7, 2005

US-PAT-NO: 6902922

DOCUMENT-IDENTIFIER: US 6902922 B2

TITLE: Subtilisin variants

DATE-ISSUED: June 7, 2005

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Ness; Jon E.	Sunnyvale	CA		
Welch; Mark	Fremont	CA		
Giver; Lorraine J.	Santa Clara	CA		
Cherry; Joel R.	Davis	CA		
Borchert; Torben V.	Birkeroed			DK
Stemmer; Willem P. C.	Los Gatos	CA		
Minshull; Jeremy	Menlo Park	CA		

US-CL-CURRENT: 435/219; 435/220, 435/221, 435/222, 435/320.1, 435/471, 435/69.1, 510/350, 536/23.2

ABSTRACT:

New subtilisin homologues (both nucleic acids and proteins) are provided. Compositions which include these new proteins, recombinant cells, shuffling methods involving the new homologues, antibodies to the new homologues, and methods of using the homologues are also provided.

27 Claims, 10 Drawing figures

Exemplary Claim Number: 1

Number of Drawing Sheets: 10

Full	Title	Citation	Front	Review	Classification	Date	Reference	Abstract	Claims	Drawings	Claims	KMC	Draw D
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☐ 6. Document ID: US 6804611 B2

L2: Entry 6 of 35

File: USPT

Oct 12, 2004

US-PAT-NO: 6804611

DOCUMENT-IDENTIFIER: US 6804611 B2

TITLE: Apparatus and method for automated protein design

DATE-ISSUED: October 12, 2004

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Mayo; Stephen L.	Pasadena	CA		
Dahiyat; Bassil I.	Los Angeles	CA		
Gordon; D. Benjamin	Pasadena	CA		
Street; Arthur	Los Angeles	CA		

US-CL-CURRENT: 702/27; 530/350, 702/19

ABSTRACT:

The present invention relates to apparatus and methods for quantitative protein design and optimization.

40 Claims, 21 Drawing figures
Exemplary Claim Number: 1
Number of Drawing Sheets: 10

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments	Claims	KWIC	Draw D
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☐ 7. Document ID: US 6801861 B2

L2: Entry 7 of 35

File: USPT

Oct 5, 2004

US-PAT-NO: 6801861
DOCUMENT-IDENTIFIER: US 6801861 B2

TITLE: Apparatus and method for automated protein design

DATE-ISSUED: October 5, 2004

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Mayo; Stephen L.	Pasadena	CA		
Dahiyat; Bassil I.	Los Angeles	CA		
Gordon; D. Benjamin	Pasadena	CA		
Street; Arthur	Los Angeles	CA		
Su; Yaoying	Newport Beach	CA		

US-CL-CURRENT: 702/27; 435/6, 530/300, 530/350, 702/19

ABSTRACT:

The present invention relates to apparatus and methods for quantitative protein design and optimization.

17 Claims, 35 Drawing figures
Exemplary Claim Number: 1
Number of Drawing Sheets: 14

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments	Claims	KWIC	Draw D
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☐ 8. Document ID: US 6792356 B2

L2: Entry 8 of 35

File: USPT

Sep 14, 2004

US-PAT-NO: 6792356
DOCUMENT-IDENTIFIER: US 6792356 B2

TITLE: Apparatus and method for automated protein design

DATE-ISSUED: September 14, 2004

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Mayo; Stephen L.	Pasadena	CA		
Dahiyat; Bassil I.	Los Angeles	CA		
Gordon; D. Benjamin	Pasadena	CA		
Street; Arthur	Los Angeles	CA		

US-CL-CURRENT: 702/27; 530/350, 702/19

ABSTRACT:

The present invention relates to apparatus and methods for quantitative protein design and optimization.

5 Claims, 21 Drawing figures

Exemplary Claim Number: 1

Number of Drawing Sheets: 10

Full	Title	Citation	Front	Review	Classification	Date	Reference	Abstracts	Figures	Claims	KWIC	Draw D
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☐ 9. Document ID: US 6743618 B2

L2: Entry 9 of 35

File: USPT

Jun 1, 2004

US-PAT-NO: 6743618

DOCUMENT-IDENTIFIER: US 6743618 B2

TITLE: Thermostable proteolytic enzymes and uses thereof in peptide and protein synthesis

DATE-ISSUED: June 1, 2004

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Young; David Michael	Gainesville	FL		

US-CL-CURRENT: 435/212; 435/219, 435/220, 536/23.2

ABSTRACT:

The subject invention pertains to new thermostable enzymes and the use of these enzymes both in proteolysis as well as protein and polypeptide synthesis. The subject invention further concerns polynucleotide sequences which encode the enzymes of the subject invention.

9 Claims, 0 Drawing figures

Exemplary Claim Number: 1

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments	Claims	KWIC	Draw D
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☐ 10. Document ID: US 6708120 B1

L2: Entry 10 of 35

File: USPT

Mar 16, 2004

US-PAT-NO: 6708120

DOCUMENT-IDENTIFIER: US 6708120 B1

TITLE: Apparatus and method for automated protein design

DATE-ISSUED: March 16, 2004

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Mayo; Stephen L.	Pasadena	CA		
Dahiyat; Bassil I.	Los Angeles	CA		
Gordon; D. Benjamin	Pasadena	CA		
Street; Arthur	Los Angeles	CA		

US-CL-CURRENT: 702/27; 435/6, 436/86, 530/350, 700/293, 702/19

ABSTRACT:

The present invention relates to apparatus and methods for quantitative protein design and optimization.

8 Claims, 21 Drawing figures

Exemplary Claim Number: 1

Number of Drawing Sheets: 10

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments	Claims	KWIC	Draw D
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☐ 11. Document ID: US 6620585 B1

L2: Entry 11 of 35

File: USPT

Sep 16, 2003

US-PAT-NO: 6620585

DOCUMENT-IDENTIFIER: US 6620585 B1

TITLE: Use of ectoenzymes and secreted enzymes to monitor cellular proliferation

DATE-ISSUED: September 16, 2003

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Zyskind; Judith W.	La Jolla	CA		

US-CL-CURRENT: 435/6; 435/252.3, 435/252.34, 435/375, 536/24.5

ABSTRACT:

The present invention relates to methods of measuring cellular proliferation using ectoenzymes such as membrane-bound chitobiase (N,N'-diacetylchitobiase) and nucleic acids for use in such methods.

28 Claims, 12 Drawing figures

Exemplary Claim Number: 1

Number of Drawing Sheets: 11

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments	Claims	KWIC	Draw D
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☐ 12. Document ID: US 6593104 B1

L2: Entry 12 of 35

File: USPT

Jul 15, 2003

US-PAT-NO: 6593104

DOCUMENT-IDENTIFIER: US 6593104 B1

TITLE: Macular degeneration diagnostics and therapeutics

DATE-ISSUED: July 15, 2003

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Stone; Edwin M.	Iowa City	IA		
Sheffield; Val C.	Coralville	IA		

US-CL-CURRENT: 435/69.1; 435/320.1, 435/325, 435/455, 536/23.1, 536/23.5

ABSTRACT:

Therapeutics and diagnostics based on the identification of genetic mutations, which cause Macular Degeneration (MD) are disclosed.

9 Claims, 13 Drawing figures

Exemplary Claim Number: 1

Number of Drawing Sheets: 12

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments	Claims	KWIC	Draw D
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☐ 13. Document ID: US 6573065 B1

L2: Entry 13 of 35

File: USPT

Jun 3, 2003

US-PAT-NO: 6573065

DOCUMENT-IDENTIFIER: US 6573065 B1

**** See image for Certificate of Correction ****

TITLE: Thermostable proteolytic enzymes and uses thereof in peptide protein

synthesis

DATE-ISSUED: June 3, 2003

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Young; David Michael	Gainesville	FL	32605	

US-CL-CURRENT: 435/68.1; 435/212, 435/219, 435/221

ABSTRACT:

The subject invention pertains to new thermostable enzymes and the use of these enzymes both in proteolysis as well as protein and polypeptide synthesis. The subject invention further concerns polynucleotide sequences which encode the enzymes of the subject invention.

5 Claims, 0 Drawing figures
Exemplary Claim Number: 1

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments	Claims	KWIC	Draw D
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☐ 14. Document ID: US 6511801 B1

L2: Entry 14 of 35

File: USPT

Jan 28, 2003

US-PAT-NO: 6511801

DOCUMENT-IDENTIFIER: US 6511801 B1

TITLE: HIV-1 group O antigens and uses thereof

DATE-ISSUED: January 28, 2003

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
DeLaporte; Eric	Saint Jean de Cuculles			FR
Peeters; Martine	Saint Jean de Cuculles			FR
Saman; Eric	Bornem			BE
Vanden Haesevelde; Marleen	Oudenaarde			BE

US-CL-CURRENT: 435/5; 424/208.1, 435/7.1, 435/7.92, 435/974, 435/975, 436/536,
530/326, 530/826

ABSTRACT:

The claimed invention relates to an HIV-1 group O envelope antigen comprising SEQ ID NO: 100, and the use of said antigen as a reagent in the diagnosis of HIV-1 group O infection, and a kit therefore.

4 Claims, 66 Drawing figures
Exemplary Claim Number: 1
Number of Drawing Sheets: 66

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments	Claims	KIMC	Draw D
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☐ 15. Document ID: US 6395889 B1

L2: Entry 15 of 35

File: USPT

May 28, 2002

US-PAT-NO: 6395889

DOCUMENT-IDENTIFIER: US 6395889 B1

TITLE: Nucleic acid molecules encoding human protease homologs

DATE-ISSUED: May 28, 2002

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Robison; Keith E.	Wilmington	MA		

US-CL-CURRENT: 536/23.2; 435/252.3, 435/320.1, 435/69.1, 536/23.5

ABSTRACT:

The invention relates to polynucleotides encoding newly identified protease homologs. The invention also relates to the proteases. The invention further relates to methods using the protease polypeptides and polynucleotides as a target for diagnosis and treatment in protease-mediated disorders. The invention further relates to drug-screening methods using the protease polypeptides and polynucleotides to identify agonists and antagonists for diagnosis and treatment. The invention further encompasses agonists and antagonists based on the protease polypeptides and polynucleotides. The invention further relates to procedures for producing the protease polypeptides and polynucleotides.

1 Claims, 0 Drawing figures

Exemplary Claim Number: 1

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments	Claims	KIMC	Draw D
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☐ 16. Document ID: US 6331427 B1

L2: Entry 16 of 35

File: USPT

Dec 18, 2001

US-PAT-NO: 6331427

DOCUMENT-IDENTIFIER: US 6331427 B1

TITLE: Protease homologs

DATE-ISSUED: December 18, 2001

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
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Robison; Keith E. Wilmington MA

US-CL-CURRENT: 435/226; 435/23, 435/252.3, 435/6, 435/69.1, 435/7.1, 536/23.2

ABSTRACT:

The invention relates to polynucleotides encoding newly identified protease homologs belonging to the superfamily of G-protein-coupled proteases. The invention also relates to the proteases. The invention further relates to methods using the protease polypeptides and polynucleotides as a target for diagnosis and treatment in protease-mediated disorders. The invention further relates to drug-screening methods using the protease polypeptides and polynucleotides to identify agonists and antagonists for diagnosis and treatment. The invention further encompasses agonists and antagonists based on the protease polypeptides and polynucleotides. The invention further relates to procedures for producing the protease polypeptides and polynucleotides.

7 Claims, 0 Drawing figures
Exemplary Claim Number: 1

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments	Claims	KWIC	Draw D
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☐ 17. Document ID: US 6294367 B1

L2: Entry 17 of 35

File: USPT

Sep 25, 2001

US-PAT-NO: 6294367

DOCUMENT-IDENTIFIER: US 6294367 B1

TITLE: Thermostable peptidase

DATE-ISSUED: September 25, 2001

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Cheng; Timothy C.	Pasadena	CA		
Ramakrishnan; Vij	Pasadena	CA		
Chan; Sunney I.	Pasadena	CA		

US-CL-CURRENT: 435/212; 435/252.3, 435/320.1, 435/325, 435/455, 435/6, 435/69.1, 536/23.2

ABSTRACT:

Thermostable peptidase enzyme derived from archaeon from the genus *Pyrococcus* is disclosed. The enzyme is produced from native or recombinant host cells and can be utilized in the biotechnology industry as a useful enzyme in sequencing reactions.

19 Claims, 18 Drawing figures
Exemplary Claim Number: 1
Number of Drawing Sheets: 12

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments	Claims	KWIC	Draw D
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☐ 18. Document ID: US 6269312 B1

L2: Entry 18 of 35

File: USPT

Jul 31, 2001

US-PAT-NO: 6269312

DOCUMENT-IDENTIFIER: US 6269312 B1

TITLE: Apparatus and method for automated protein design

DATE-ISSUED: July 31, 2001

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Mayo; Stephen L.	Pasadena	CA		
Dahiyat; Bassil I.	Los Angeles	CA		
Gordon; D. Benjamin	Pasadena	CA		
Street; Arthur	Los Angeles	CA		
Su; Yaoying	Newport Beach	CA		

US-CL-CURRENT: 702/19; 382/100, 702/27

ABSTRACT:

The present invention relates to apparatus and methods for quantitative protein design and optimization.

23 Claims, 35 Drawing figures

Exemplary Claim Number: 1

Number of Drawing Sheets: 14

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments	Claims	KWIC	Draw D
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☐ 19. Document ID: US 6188965 B1

L2: Entry 19 of 35

File: USPT

Feb 13, 2001

US-PAT-NO: 6188965

DOCUMENT-IDENTIFIER: US 6188965 B1

TITLE: Apparatus and method for automated protein design

DATE-ISSUED: February 13, 2001

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Mayo; Stephen L.	Pasadena	CA		
Dahiyat; Bassil I.	Los Angeles	CA		

Gordon; D. Benjamin Pasadena CA
Street; Arthur Los Angeles CA

US-CL-CURRENT: 702/27; 706/45, 706/47

ABSTRACT:

The present invention relates to apparatus and methods for quantitative protein design and optimization.

16 Claims, 21 Drawing figures
Exemplary Claim Number: 1
Number of Drawing Sheets: 10

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments	Claims	KWIC	Draw. D
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☐ 20. Document ID: US 6143517 A

L2: Entry 20 of 35

File: USPT

Nov 7, 2000

US-PAT-NO: 6143517

DOCUMENT-IDENTIFIER: US 6143517 A

**** See image for Certificate of Correction ****

TITLE: Thermostable proteolytic enzymes and uses thereof in peptide and protein synthesis

DATE-ISSUED: November 7, 2000

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Young; David Michael	Gainesville	FL		

US-CL-CURRENT: 435/68.1; 435/212, 435/219, 435/220, 536/23.2

ABSTRACT:

The subject invention pertains to new thermostable enzymes and the use of these enzymes both in proteolysis as well as protein and polypeptide synthesis. The subject invention further concerns polynucleotide sequences which encode the enzymes of the subject invention.

4 Claims, 0 Drawing figures
Exemplary Claim Number: 1

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments	Claims	KWIC	Draw. D
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☐ 21. Document ID: US 5846802 A

L2: Entry 21 of 35

File: USPT

Dec 8, 1998

US-PAT-NO: 5846802
DOCUMENT-IDENTIFIER: US 5846802 A

TITLE: Fungal Protease

DATE-ISSUED: December 8, 1998

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Buxton; Frank	4132 Muttentz			CH
Hinnen; Albert	07743 Jena			DE
Visser; Jacob	6703 CK Wgeningen			NL

US-CL-CURRENT: 435/225; 435/254.11, 435/254.3, 435/320.1, 435/69.1, 435/91.1,
536/23.2

ABSTRACT:

The present invention concerns a novel DNA sequence coding for an Aspergillus serine protease of the subtilisin-type, an Aspergillus serine protease of the subtilisin-type per se and a method for the preparation thereof. The invention further concerns a novel Aspergillus mutant strain defective in a serine protease of the subtilisin-type, which is useful for the expression of heterologous protein, and a method for the preparation of such a mutant strain.

13 Claims, 0 Drawing figures
Exemplary Claim Number: 1

Full	Title	Citation	Front	Review	Classification	Date	Reference	Exemplary	Exemplary	Claims	KWIC	Draw D
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☐ 22. Document ID: US 5756338 A

L2: Entry 22 of 35

File: USPT

May 26, 1998

US-PAT-NO: 5756338
DOCUMENT-IDENTIFIER: US 5756338 A

TITLE: Aspergillus niger vacuolar aspartyl protease

DATE-ISSUED: May 26, 1998

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Buxton; Frank	Muttentz			CH
Jarai; Gabor	Oberwil			CH
Visser; Jacob	Wageningen			NL

US-CL-CURRENT: 435/219; 435/254.3, 536/23.2

ABSTRACT:

The present invention concerns a novel DNA sequence coding for an Aspergillus aspartic protease, an Aspergillus aspartic protease per se and a method for the preparation thereof. The invention further concerns a novel Aspergillus mutant strain defective in a protease of the aspartic proteinase-type, which is useful for the expression of heterologous protein, and a method for the preparation of such a mutant strain.

3 Claims, 0 Drawing figures

Exemplary Claim Number: 2

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments	Claims	KWIC	Draw D
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☐ 23. Document ID: US 5674728 A

L2: Entry 23 of 35

File: USPT

Oct 7, 1997

US-PAT-NO: 5674728

DOCUMENT-IDENTIFIER: US 5674728 A

TITLE: Aspergillus niger vacuolar aspartyl protease

DATE-ISSUED: October 7, 1997

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Buxton; Frank	Muttenz			CH
Jarai; Gabor	Oberwil			CH
Visser; Jacob	Wageningen			NL

US-CL-CURRENT: 435/225; 435/252.3, 435/254.11, 435/254.3, 435/320.1, 435/477,
435/488, 435/69.1, 536/23.2

ABSTRACT:

The present invention concerns a novel DNA sequence coding for an Aspergillus aspartic protease, an Aspergillus aspartic protease per se and a method for the preparation thereof. The invention further concerns a novel Aspergillus mutant strain defective in a protease of the aspartic proteinase-type, which is useful for the expression of heterologous protein, and a method for the preparation of such a mutant strain.

17 Claims, 0 Drawing figures

Exemplary Claim Number: 1

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments	Claims	KWIC	Draw D
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☐ 24. Document ID: US 5350681 A

L2: Entry 24 of 35

File: USPT

Sep 27, 1994

US-PAT-NO: 5350681

DOCUMENT-IDENTIFIER: US 5350681 A

**** See image for Certificate of Correction ****

TITLE: Enzymatic membrane method for the synthesis and separation of peptides

DATE-ISSUED: September 27, 1994

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Iacobucci; Guillermo A.	Atlanta	GA		
Brose; Daniel J.	Bend	OR		
Ray; Roderick J.	Bend	OR		
van Eikeren; Paul	Bend	OR		

US-CL-CURRENT: 435/68.1, 422/149, 422/236, 422/238, 435/175, 435/182, 435/185,
435/280, 435/41, 435/70.1, 435/71.1, 530/344, 530/801, 560/38, 560/40, 560/41

ABSTRACT:

The present invention discloses a method for the enzymatic synthesis of a peptide. A protected peptide having a C-terminal carboxylate group or a protected, N-acyl amino acid having an alpha carboxylate group is reacted with a protected peptide having an N-terminal ammonium group or a protected amino acid having an alpha ammonium group in the presence of a condensation enzyme under conditions in which the carboxylate group and the ammonium group condense to form a protected, uncharged, peptide product. This peptide product is transported across a water-immiscible hydrophobic phase into an aqueous product phase and prevented from back diffusing across the water-immiscible hydrophobic phase. The peptide product can be converted, chemically or enzymatically, to a charged species that cannot back diffuse across the water-immiscible phase into the aqueous reaction phase. The water-immiscible hydrophobic phase is an ion rejection membrane separating the aqueous reaction phase from the product phase creating oil/water interfaces with each of the aqueous phases.

32 Claims, 28 Drawing figures

Exemplary Claim Number: 1

Number of Drawing Sheets: 27

Full	Title	Citation	Front	Review	Classification	Date	Reference			Claims	KMC	Draw D
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☐ 25. Document ID: US 5336601 A

L2: Entry 25 of 35

File: USPT

Aug 9, 1994

US-PAT-NO: 5336601

DOCUMENT-IDENTIFIER: US 5336601 A

**** See image for Certificate of Correction ****

TITLE: Enzymatic membrane method for the snythesis and separation of peptides

DATE-ISSUED: August 9, 1994

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Iacobucci; Guillermo A.	Atlanta	GA		

US-CL-CURRENT: 435/68.1; 435/175, 435/297.4, 435/70.1

ABSTRACT:

The present invention discloses a method for the enzymatic synthesis of a peptide. A protected peptide having a C-terminal carboxylate group or a protected, N-acyl amino acid having an alpha carboxylate group is reacted with a protected peptide having an N-terminal ammonium group or a protected amino acid having an alpha ammonium group in the presence of a condensation enzyme under conditions in which the carboxylate group and the ammonium group condense to form a protected, uncharged, peptide product. This peptide product is transported across a water-immiscible hydrophobic phase into an aqueous product phase. This peptide product is removed from the aqueous product phase to prevent back diffusion across the water-immiscible hydrophobic phase. Reverse osmosis and other separation techniques may be utilized to remove the peptide product. The water-immiscible hydrophobic phase is an ion rejection membrane separating the aqueous reaction phase from the product phase creating oil/water interfaces with each of the aqueous phases.

20 Claims, 28 Drawing figures

Exemplary Claim Number: 1

Number of Drawing Sheets: 27

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments	Claims	KWIC	Draw D
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☐ 26. Document ID: US 5202235 A

L2: Entry 26 of 35

File: USPT

Apr 13, 1993

US-PAT-NO: 5202235

DOCUMENT-IDENTIFIER: US 5202235 A

TITLE: Enzymatic method for the synthesis and separation of peptides

DATE-ISSUED: April 13, 1993

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Iacobucci; Guillermo A.	Atlanta	GA		

US-CL-CURRENT: 435/68.1; 435/175, 435/70.1

ABSTRACT:

The present invention provides a method for the enzymatic synthesis of peptides accomplished by shifting the chemical equilibrium that exists in a reaction mixture between charged or ionized reacting amino acids and uncharged or non-ionized peptide product in the presence of a proteolytic enzyme such as thermolysin. The equilibrium is shifted by diffusion of the uncharged peptide product across an ion-rejection membrane which removes the uncharged peptide from the reaction mixture

and preferably the diffused uncharged peptide is quickly converted to a charged species that cannot back-diffuse into the reaction mixture so that the uncharged peptide is effectively "pulled" across the membrane.

13 Claims, 4 Drawing figures

Exemplary Claim Number: 1

Number of Drawing Sheets: 4

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments	Claims	KWIC	Draw D
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☐ 27. Document ID: US 5116741 A

L2: Entry 27 of 35

File: USPT

May 26, 1992

US-PAT-NO: 5116741

DOCUMENT-IDENTIFIER: US 5116741 A

TITLE: Biosynthetic uses of thermostable proteases

DATE-ISSUED: May 26, 1992

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Bryan; Philip N.	Silver Spring	MD		
Pantoliano; Michael W.	Germantown	MD		
Rollence; Michele L.	Damascus	MD		
Wong; Chi H.	College Station	TX		

US-CL-CURRENT: 435/87; 435/88

ABSTRACT:

The invention relates to the novel use of mutants of subtilisin in organic syntheses reactions in non-native environments. Especially the invention relates to methods for the use of mutant subtilisins in organic solvents for the catalysis of reactions involving ester formation and cleavage, including acylations and deacylations, and amidations and deamidations. The methods provide novel strategies which are useful in the synthesis of deoxynucleosides, dideoxynucleosides, peptides, sugars and the like.

3 Claims, 3 Drawing figures

Exemplary Claim Number: 1

Number of Drawing Sheets: 3

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments	Claims	KWIC	Draw D
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☐ 28. Document ID: US 4667017 A

L2: Entry 28 of 35

File: USPT

May 19, 1987

US-PAT-NO: 4667017
DOCUMENT-IDENTIFIER: US 4667017 A

TITLE: Method for producing an active protein

DATE-ISSUED: May 19, 1987

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Ishida; Torao	Nagareyama			JP

US-CL-CURRENT: 530/402; 530/339, 930/10, 930/141, 930/142, 930/240

ABSTRACT:

An active protein can be easily, safely produced by a method comprising providing a first peptide fragment having a first amino acid sequence corresponding to part of an active protein and a second peptide fragment having a second amino acid sequence corresponding to the remaining part of the active protein, at least one of said first peptide fragment and said second peptide fragment being one which has been obtained by recombinant DNA technique or has been obtained by a method comprising producing a predetermined peptide fragment by recombinant DNA technique and deleting from or adding to said predetermined peptide fragment at its N-terminus at least one amino acid residue; and linking said first peptide fragment at its C-terminus to said second peptide fragment at its N-terminus. The method of the present invention may be practiced, with further advantages, by predetermining said first peptide fragment and said second peptide fragment so that a first occurring methionine residue subsequent to the N-terminal amino acid residue of the active protein constitutes the N-terminal amino acid of the amino acid sequence of said second peptide fragment, or so that an amino acid residue positioned near the first occurring methionine residue subsequent to the N-terminal amino acid residue of the desired protein on the side of the N-terminus of the desired protein constitutes the N-terminal amino acid residue of said second peptide fragment.

15 Claims, 0 Drawing figures
Exemplary Claim Number: 1

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments	Claims	KWIC	Draw. D
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☐ 29. Document ID: US 4652552 A

L2: Entry 29 of 35

File: USPT

Mar 24, 1987

US-PAT-NO: 4652552
DOCUMENT-IDENTIFIER: US 4652552 A

TITLE: Tetrapeptide methyl ketone inhibitors of viral proteases

DATE-ISSUED: March 24, 1987

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Kettner; Charles A.	Wilmington	DE		

Korant; Bruce D. Wilmington DE

US-CL-CURRENT: 514/18; 930/23, 930/250

ABSTRACT:

Certain peptide methyl ketone derivatives inhibit picornavirus replication by inhibition of virus-specified protease activity.

9 Claims, 0 Drawing figures

Exemplary Claim Number: 1

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments	Claims	KWIC	Draw D
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☐ 30. Document ID: US 4644055 A

L2: Entry 30 of 35

File: USPT

Feb 17, 1987

US-PAT-NO: 4644055

DOCUMENT-IDENTIFIER: US 4644055 A

TITLE: Method for preparing specific inhibitors of virus-specified proteases

DATE-ISSUED: February 17, 1987

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Kettner; Charles A.	Wilmington	DE		
Korant; Bruce D.	Wilmington	DE		

US-CL-CURRENT: 530/330; 530/324, 530/350, 930/220, 930/222, 930/223, 930/250,
930/DIG.785, 930/DIG.786

ABSTRACT:

A general method for preparing specific inhibitors of virus-specified proteases is disclosed. The inhibitors comprise a halomethyl ketone or methyl ketone moiety covalently linked to a peptide sequence of three, four or five amino acids or amino acid residues, which peptide sequence corresponds to an amino acid sequence found adjacent to and upstream of a cleavage site recognized by a virus-specified protease.

9 Claims, 2 Drawing figures

Exemplary Claim Number: 1

Number of Drawing Sheets: 2

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments	Claims	KWIC	Draw D
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Terms	Documents
(peptide bond formation or peptide synthesis or peptide synthase or peptide synthetase) and thermostable same(protease or proteinase)	35

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☐ 31. Document ID: US 4636492 A

L2: Entry 31 of 35

File: USPT

Jan 13, 1987

US-PAT-NO: 4636492

DOCUMENT-IDENTIFIER: US 4636492 A

TITLE: Inhibition of viral protease activity by peptide halomethyl ketones

DATE-ISSUED: January 13, 1987

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Kettner; Charles A.	Wilmington	DE		
Korant; Bruce D.	Wilmington	DE		

US-CL-CURRENT: [514/18](#); [514/19](#), [530/330](#), [530/331](#), [930/23](#), [930/250](#), [930/DIG.785](#)

ABSTRACT:

Selected tripeptide and tetrapeptide halomethyl ketones are employed in processes for treating viral infection in mammals. These compounds inhibit picornavirus protease activity.

26 Claims, 0 Drawing figures

Exemplary Claim Number: 1

Full	Title	Citation	Front	Review	Classification	Date	Reference	Examinations	Examinations	Claims	KMIC	Draw D
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☐ 32. Document ID: JP 02286084 A

L2: Entry 32 of 35

File: JPAB

Nov 26, 1990

PUB-NO: JP402286084A

DOCUMENT-IDENTIFIER: JP 02286084 A

TITLE: PRODUCTION OF THERMOSTABLE METAL PROTEASE OF GENUS BACILLUS

PUBN-DATE: November 26, 1990

INVENTOR-INFORMATION:

NAME	COUNTRY
SHIMIZU, YASUHIRO	

US-CL-CURRENT: 435/221

INT-CL (IPC): C12N 9/54; C12P 21/02

ABSTRACT:

PURPOSE: To obtain the subject protease, remarkably improved in thermal stability, excellent also in solubility and useful as a peptide synthetase by reacting a metal protease of the genus Bacillus with a specific acid anhydride and acylating the protease.

CONSTITUTION: A metal protease of the genus Bacillus is reacted with at least one selected from succinic anhydride, maleic anhydride and acetic anhydride and acylated (e.g. under reaction conditions of pH7.5-9.0 and 15-30min) to afford the objective protease.

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Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments	Claims	KWIC	Draw. De
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☐ 33. Document ID: US 6573065 B1

L2: Entry 33 of 35

File: DWPI

Jun 3, 2003

DERWENT-ACC-NO: 2003-669501

DERWENT-WEEK: 200480

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TITLE: Synthesis a protein comprises catalyzing the ligation of peptides or polypeptides with a thermostable protease in the absence of organic co-solvents, product precipitation, and activated amino acids

INVENTOR: YOUNG, D M

PRIORITY-DATA: 1996US-0773475 (December 23, 1996), 1998US-0197945 (November 23, 1998), 1999US-0404031 (September 23, 1999)

PATENT-FAMILY:

PUB-NO	PUB-DATE	LANGUAGE	PAGES	MAIN-IPC
<u>US 6573065 B1</u>	June 3, 2003		010	C12P021/06

INT-CL (IPC): C12P 21/06

ABSTRACTED-PUB-NO: US 6573065B

BASIC-ABSTRACT:

NOVELTY - Synthesizing a protein comprising catalyzing a ligation of peptides or polypeptides with a thermostable protease at at least 60 deg. C in the absence of organic co-solvents, product precipitation, and activated amino acids, is new.

USE - The method is useful for the synthesis of a protein (claimed). The proteases of the invention are also disclosed as being useful for various proteolytic applications e.g. in the food and waste processing industries.

ADVANTAGE - The thermostable protease facilitates high specific and efficient peptide synthesis. It is active both as an endo- and as an exo-peptidase and

retains its enzymatic activity at 100 deg. C. The protease can synthesize peptide bonds at high temperatures with high yields. It does not need group protection and toxic solvents during synthesis, thus the inventive method can be carried out without using harmful organic solvents.

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments	Claims	KWIC	Draw D
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☐ 34. Document ID: US 6143517 A

L2: Entry 34 of 35

File: DWPI

Nov 7, 2000

DERWENT-ACC-NO: 2001-006433

DERWENT-WEEK: 200480

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TITLE: Synthesis of proteins and peptides involves catalyzing ligation of peptides or polypeptides using novel thermostable serine protease

INVENTOR: YOUNG, D M

PRIORITY-DATA: 1996US-0773475 (December 23, 1996), 1998US-0197945 (November 23, 1998)

PATENT-FAMILY:

PUB-NO	PUB-DATE	LANGUAGE	PAGES	MAIN-IPC
US 6143517 A	November 7, 2000		009	C12P021/06

INT-CL (IPC): C12P 21/06

ABSTRACTED-PUB-NO: US 6143517A

BASIC-ABSTRACT:

NOVELTY - Protein synthesis is carried out by catalyzing the ligation of peptides or polypeptides with a thermostable enzyme having the amino acid (aa) sequence SSIEWNEKTFKFAFYLS DPR at 50 deg. C or higher, is new.

USE - The method is useful for synthesis of protein and polypeptides.

ADVANTAGE - The enzyme facilitates highly specific and efficient peptide synthesis and synthesizes peptide bonds at high temperature with high yields. The enzyme is both endopeptidase as well as carboxypeptidase. Group protection and toxic solvents are not needed when polypeptide synthesis is carried out and unlike conventional procedures peptide synthesis can be carried out without the use of harmful organic solvents.

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments	Claims	KWIC	Draw D
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☐ 35. Document ID: JP 62151194 A, JP 93059715 B

L2: Entry 35 of 35

File: DWPI

Jul 6, 1987

DERWENT-ACC-NO: 1987-225751

DERWENT-WEEK: 198732

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TITLE: Prod'n. of peptide(s) or peptide derivs. - by reacting (alpha) amino acid (deriv.) in the presence of protease treated amino:acyl-tRNA synthetase

PRIORITY-DATA: 1985JP-0296862 (December 25, 1985)

PATENT-FAMILY:

PUB-NO	PUB-DATE	LANGUAGE	PAGES	MAIN-IPC
<u>JP 62151194 A</u>	July 6, 1987		006	
<u>JP 93059715 B</u>	August 31, 1993		006	C12P021/02

INT-CL (IPC): C12P 21/02

ABSTRACTED-PUB-NO: JP 62151194A

BASIC-ABSTRACT:

Prod'n. of peptides or peptide derivs. by reaction of an alpha-amino acid and an amino acid or an amino acid deriv. in the presence of aminoacyl-tRNA synthetase, where protease-treated aminoacyl-tRNA synthetase is used as the aminoacyl-tRNA synthetase.

Pref'd. aminoacyl-tRNA synthetase is derived from thermostable bacteria (e.g. Bacillus stearothermophilus). (2) Pref'd. proteases are endoproteases e.g. trypsin, plasmin, proteinase K, papain, thermolysin, bromelain, chymopapain, pepsin, subtilisin, alpha-chymotrypsin and V8 protease. (3) Protease-treatment is pref. carried out for 30-60 min at 25-35 deg.C and at pH 7-8. (4) Nucleoside triphosphate (e.g. adenosine triphosphate) is pref. added as an energy source of the reaction.

USE/ADVANTAGE - In peptide synthesis, two methods, ie. chemical synthesis method and enzyme method, are known. In enzyme method, aminoacyl-tRNA synthetase was found to be able to synthesise peptide bonds, but its activity was low. The catalytic activity of aminoacyl-tRNA synthetase is increased and reaction rate of amino acids increases by 1.6-2 fold. This method is a new one which doesn't exhibit racemation, side reactions or require protecting gps.

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments	Claims	KWIC	Draw. D
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Terms

(peptide bond formation or peptide synthesis
or peptide synthase or peptide synthetase)
and thermostable same(protease or proteinase)

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